What is claimed is:

1. A linear damper, comprising:

a casing;

a slider inserted into the casing and moving relatively to the casing, and having a working portion;

a damping groove provided in one of the casing and the slider, and having tapering faces formed on the side faces of the damping groove and inclined to taper an inner width of the damping groove in one of a depth direction and an opening direction;

a damping portion provided in the other of the casing and the slider to be fitted in the damping groove with allowance for a sliding movement, and having tapering faces facing the tapering faces of the damping groove; and

a conversion mechanism for producing a force pressing the damping portion in a direction tapering the inner width of the damping groove when a force is applied to the working portion to move the slider in the axis direction.

2. A linear damper according to claim 1,

wherein the slider includes a first moving member provided with the working portion, and a second moving member formed independently of the first moving member and provided with one of the damping groove and the damping portion; and

wherein the conversion mechanism moves the second moving member in conjunction with a movement of the first moving member in the axis direction, to produce the force pressing the damping portion in the direction tapering the inner width of the damping groove.

3. A linear damper according to claim 2,

wherein the second moving member is provided movably in the depth direction of the damping groove; and

wherein the conversion mechanism includes inclined faces provided in one of the first and second moving members, and contact portions provided in the other moving member to come into contact with the individual inclined faces, and exerts a moving force of the first moving member on the second moving member via the inclined faces, so that when the moving force of the first moving member is exerted on the second moving member, the second moving member is moved in the depth direction of the damping groove to press the damping portion in the direction tapering the inner width of the damping groove.

4. A linear damper according to claim 2 or 3, further comprising:

in addition to the conversion mechanism, a release mechanism provided for removing the force pressing the damping portion in the direction tapering the inner width of the damping groove, and

including inclined faces provided in at least one of the first and second moving members, and contact portions provided in the other moving member to come into contact with the individual inclined faces,

wherein the inclined face of the release mechanism is inclined in the same direction as that of the inclined face of the conversion mechanism.

5. A linear damper according to claim 4,

wherein when the first moving member is moved in one of forward and backward directions of the axis of the first moving member, the conversion mechanism moves the second moving member in the depth direction of the damping groove to produce the force pressing the damping portion in the direction tapering the inner width of the damping groove, and when the first moving member is moved in the other direction of the forward and backward directions of the axis, the release mechanism removes the force pressing the damping portion in the direction tapering the inner width of the damping groove,

further comprising a spring for exerting a spring force in a direction removing the pressing force on the first moving member.

6. A linear damper according to any one of claims 2, 3 and 4,

wherein the second moving members are provided in plural around the first moving member,

wherein the inclined face is provided in one of the first and second moving member, and the contact portion is provided in the other moving member to come into contact with the inclined face, the inclined face provided in one of the first and second moving members and the contact portion provided in the other moving member facing each other.

7. A linear damper according to claim 1, wherein the slider is integrally formed by combining the working portion and one of the damping portion and the damping groove, and the axis of the working portion is eccentric to the axis of the one of the damping portion and the damping groove.

8. A linear damper according to claim 7, wherein the damping groove provided in the casing is shaped in form of a dovetail groove, and the damping portion provided in the slider is fitted into the dovetail groove with allowance for a sliding movement.

9. A linear damper according to claim 8, wherein the working portion of the slider has a shaft portion, and the casing has a shaft hole through which the shaft portion passes, and a clearance

for allowing the shaft portion to move in a direction opposite to the damping portion.

10. A linear damper according to claim 8 or 9, wherein when the slider is moved one of forward and backward directions of the axis of the slider, the conversion mechanism exerts the force pressing the damping portion in the direction tapering the inner width of the damping groove,

further comprising a spring provided for exerting a spring force in a direction returning the damping portion to a normal position on the damping portion.